

PATENT COOPERATION TREATY

PCT

INTERNATIONAL SEARCH REPORT

(PCT Article 18 and Rules 43 and 44)

Applicant's or agent's file reference P33779WO/TF	FOR FURTHER ACTION		see Notification of Transmittal of International Search Report (Form PCT/ISA/220) as well as, where applicable, item 5 below.
International application No. PCT/GB 03/05158	International filing date (day/month/year) 27/11/2003	(Earliest) Priority Date (day/month/year) 29/11/2002	
Applicant MEDICAL RESEARCH COUNCIL			

This International Search Report has been prepared by this International Searching Authority and is transmitted to the applicant according to Article 18. A copy is being transmitted to the International Bureau.

This International Search Report consists of a total of 5 sheets.

☒ It is also accompanied by a copy of each prior art document cited in this report.

1. Basis of the report

a. With regard to the **language**, the international search was carried out on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.

☐ the international search was carried out on the basis of a translation of the international application furnished to this Authority (Rule 23.1(b)).

b. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, the international search was carried out on the basis of the sequence listing:

☐ contained in the international application in written form.

☐ filed together with the international application in computer readable form.

☐ furnished subsequently to this Authority in written form.

☐ furnished subsequently to this Authority in computer readable form.

☐ the statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.

☐ the statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

2. ☒ **Certain claims were found unsearchable** (See Box I).

3. ☐ **Unity of invention is lacking** (see Box II).

4. With regard to the **title**,

☐ the text is approved as submitted by the applicant.

☒ the text has been established by this Authority to read as follows:

STRUCTURE OF A COMPLEX OF RETINOBLASTOMA PROTEIN BOUND TO E2F, AND USES THEREOF

5. With regard to the **abstract**,

☒ the text is approved as submitted by the applicant.

☐ the text has been established, according to Rule 38.2(b), by this Authority as it appears in Box III. The applicant may, within one month from the date of mailing of this international search report, submit comments to this Authority.

6. The figure of the **drawings** to be published with the abstract is Figure No.

☒ as suggested by the applicant.

☐ because the applicant failed to suggest a figure.

☐ because this figure better characterizes the invention.

1a _____

☐ None of the figures.

INTERNATIONAL SEARCH REPORT

Int. Jona. cation No
PCT/03/05158

A. CLASSIFICATION OF SUBJECT MATTER
IPC 7 C07K14/47

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
IPC 7 C07K

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

BIOSIS, EPO-Internal, MEDLINE

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	LEE JIE-OH ET AL: "Structure of the retinoblastoma tumour-suppressor pocket domain bound to a peptide from HPV E7" NATURE (LONDON), vol. 391, no. 6670, 26 February 1998 (1998-02-26), pages 859-865, XP002272473 ISSN: 0028-0836 the whole document	3-39,45
Y	HELIN K ET AL: "A CDNA ENCODING A PRB-BINDING PROTEIN WITH PROPERTIES OF THE TRANSCRIPTION FACTOR E2F" CELL, CELL PRESS, CAMBRIDGE, NA, US, vol. 70, no. 2, 24 July 1992 (1992-07-24), pages 337-350, XP000872846 ISSN: 0092-8674 the whole document	3-39,45

☒ Further documents are listed in the continuation of box C.

☐ Patent family members are listed in annex.

* Special categories of cited documents:

- *A* document defining the general state of the art which is not considered to be of particular relevance
- *E* earlier document but published on or after the international filing date
- *L* document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
- *O* document referring to an oral disclosure, use, exhibition or other means
- *P* document published prior to the international filing date but later than the priority date claimed

- *T* later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
- *X* document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
- *Y* document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.
- *8* document member of the same patent family

Date of the actual completion of the international search

14 April 2004

Date of mailing of the international search report

22/04/2004

Name and mailing address of the ISA

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II INTERNATIONAL SEARCH REPORT

Int. Application No

PCT/03/05158

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
P,X	<p>DATABASE PDB 'Online! RCSB; 7 January 2003 (2003-01-07) LEE CHANGWOOK ET AL: "Structure of rb tumor suppressor bound to the transactivation domain of e2f-2" retrieved from PDB Database accession no. 1n4m XP002272474 the whole document & LEE CHANGWOOK ET AL: "Structural basis for the recognition of the E2F transactivation domain by the retinoblastoma tumor suppressor." GENES & DEVELOPMENT, UNITED STATES 15 DEC 2002, vol. 16, no. 24, 15 December 2002 (2002-12-15), pages 3199-3212, ISSN: 0890-9369</p>	3-39,45
P,X	<p>DATABASE PDB 'Online! RCSB; 6 March 2003 (2003-03-06) XIAO ET AL: "Crystal Structure Of The Retinoblastoma Tumour Suppressor Protein Bound To E2F Peptide" retrieved from PDB Database accession no. 1o9k XP002272475 abstract & XIAO ET AL.: "Crystal Structure of the Retinoblastoma Tumor" PROC.NATL.ACAD.SCI., vol. 100, no. 5, 21 February 2003 (2003-02-21), pages 2363-2368, USA</p>	3-39,45

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

Continuation of Box I.2

Claims Nos.: 40-44

Present claims 40-44 relate to compounds defined by reference to a desirable characteristic or property, namely that they modulate the interaction between pRb and E2F, and that they may be identified by one of the claimed in silico sceening or modeling methods.

The claims cover all compounds having this characteristic or property, whereas the application provides support within the meaning of Article 6 PCT and/or disclosure within the meaning of Article 5 PCT for no such compounds. In the present case, the claims so lack support, and the application so lacks disclosure, that a meaningful search over the whole of the claimed scope is impossible. Independent of the above reasoning, the claims also lack clarity (Article 6 PCT). An attempt is made to define the compounds by reference to a result to be achieved. Again, this lack of clarity in the present case is such as to render a meaningful search over the whole of the claimed scope impossible. Consequently, no search has been carried out for these claims.

The applicant's attention is drawn to the fact that claims, or parts of claims, relating to inventions in respect of which no international search report has been established need not be the subject of an international preliminary examination (Rule 66.1(e) PCT). The applicant is advised that the EPO policy when acting as an International Preliminary Examining Authority is normally not to carry out a preliminary examination on matter which has not been searched. This is the case irrespective of whether or not the claims are amended following receipt of the search report or during any Chapter II procedure.

INTERNATIONAL SEARCH REPORT

International application No.
PCT/GB 03/05158

Box I Observations where certain claims were found unsearchable (Continuation of item 1 of first sheet)

This International Search Report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☒ Claims Nos.: 1, 2, 46
because they relate to subject matter not required to be searched by this Authority, namely:
Rule 39.1(v) PCT - Presentation of information
2. ☒ Claims Nos.: 40-44
because they relate to parts of the International Application that do not comply with the prescribed requirements to such an extent that no meaningful International Search can be carried out, specifically:
see FURTHER INFORMATION sheet PCT/ISA/210
3. ☐ Claims Nos.:
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

Box II Observations where unity of invention is lacking (Continuation of item 2 of first sheet)

This International Searching Authority found multiple inventions in this International application, as follows:

1. ☐ As all required additional search fees were timely paid by the applicant, this International Search Report covers all searchable claims.
2. ☐ As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.
3. ☐ As only some of the required additional search fees were timely paid by the applicant, this International Search Report covers only those claims for which fees were paid, specifically claims Nos.:
4. ☐ No required additional search fees were timely paid by the applicant. Consequently, this International Search Report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

Remark on Protest

- ☐ The additional search fees were accompanied by the applicant's protest.
- ☐ No protest accompanied the payment of additional search fees.